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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,224	01/02/2002	Ebrahim Andideh	42390P11353	2917
8791	7590	02/23/2004	EXAMINER	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD, SEVENTH FLOOR LOS ANGELES, CA 90025			LEE, HSIEN MING	
			ART UNIT	PAPER NUMBER
			2823	
DATE MAILED: 02/23/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/040,224

Applicant(s)

ANDIDEH, EBRAHIM

Examiner

Hsien-Ming Lee

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-13,15-17 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,4 and 6-10 is/are allowed.
- 6) ☒ Claim(s) 13 is/are rejected.
- 7) ☒ Claim(s) 3,5,11-13,15-17 and 19-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Remarks***

1. Applicants' RCE filing request is acknowledged.
2. Applicants' cancellation to claims 2, 14, 18 and 22-30 is acknowledged. Thus, claims 1, 3-13, 15-17, and 19-21 are pending in the application.

### ***Claim Objections***

3. Claims 3, 5, 11, 12, 13, 15, 17, and 21 are objected to because of the following informalities: improper term.

In claim 3 (line 2), 5 (line 2), 15 (line 2) and 17 (line 2), changing "if" into – **when** – is suggested.

In claim 11 (line 2), 12 (line 2) and claim 21 (line 2), changing "any of" and "any one of" into – **one** of – is suggested.

In claim 13, at lines 3, 5 and 7, changing "the surface" into – **a** surface – is suggested.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

At line 10, the term "with an etch" is not clear. Does it mean -- with an etchant -- or -- with an etching process --?

***Allowable Subject Matter***

6. Claims 1, 4, 6-10 are allowed.
7. Claims 3, 5, 11, 12 would be allowable if rewritten to overcome the objection, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
8. Claim 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
9. Claims 15-17 and 19-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter:  
  
The prior art of record, Andideth et al. (US 6,448,185), teach a related method, comprising steps of:
  - forming a first patterned conductive layer 101 on a dielectric material on a substrate 100;
  - forming a non-organic first barrier layer 102 (silicon nitride) on a surface of the first patterned conductive layer 101;
  - forming a dielectric layer 103 on a surface of the non-organic first barrier layer 102;
  - forming a via 107 and a trench 106 through a first portion of the dielectric layer 103 and through a first portion of the non-organic first barrier layer 102;wherein the non-organic first barrier layer 102 is prevent diffusion of metal from the patterned conductive layer 101 into the dielectric layer 103.

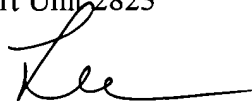
In contrast, Andideth et al. neither teach nor suggest forming a *second barrier layer of silicon carbide* on a surface of the non-organic first barrier layer; and forming one of the via and the trench through the non-organic first barrier layer and the second barrier with a single etch pass.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-Ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on M-F (9:00 ~ 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-Ming Lee  
Examiner  
Art Unit 2823



Feb. 6, 2004.